INTERACTIVE LECTURES: A PERSPECTIVE OF STUDENTS AND LECTURERS

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ABSTRACT

Objective: *To evaluate usefulness of lectures in learning of basic science subjects by students and lecturers.*

Methodology: *It was a survey carried out in Bahria University Medical & Dental College after completion of six modules of teaching in Basic Sciences from January 2009 till December 2010. Response on usefulness of interactive lectures (IL) was acquired by a questionnaire designed separately for students and lecturers. The data was interpreted by soft ware "Statistical Software for Social sciences" (SPSS) version 15.*

Results: *The perception of 97 students and 15 lecturers indicated usefulness of IL in better understanding of subject content. Majority of lecturers (93%) were convinced with its role in concept visualization. They were however not convinced with its role in persistence of interest and student's interaction (33%).Majority of students (84%) were satisfied with delivery of content ($p<0.005$), 89% understood structural and functional relationship by the teaching methodology however felt need of its improvement in terms of relevance of knowledge in applied sciences.*

Conclusion: *The lecturers and students agreed upon usefulness of IL and its continuation as part of core curriculum in teaching of basic science subjects.*

Key Words: *Medical students, Didactic lectures, Interactive Lectures, Power point presentation, Teaching methodology, Medical education.*

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INTRODUCTION

Exposure to medical curriculum in first-year undergraduate teaching is stressful, voluminous and challenging for the medical students who come from different cultural and educational backgrounds[1]. The main objective of medical education is to impart knowledge to its recipients, build attitudes and develop psychomotor skills with the help of competent teaching-learning exchange processes[1,2]. The objective is achieved by teaching in large and small group discussions, peer teaching, collaborative group learning, activity-based learning debates, role-playing or simulations and interactive computer-based learning.

In the large group discussions, lecture is a staple of medical education which is best defined as one person speaking, more or less continuously, to a group of people on a particular subject or theme[3]. It is slot in the time table where students are taught in a designated space (lecture theatre) where one lecturer has prime responsibility for delivering content to a large group of students[4]. Teaching during lectures is a special form of communication in which voice, gesture, movement, facial expression, and eye contact can either complement or detract from the content. Conventional lectures in large classrooms confront fundamental didactic problems due to a lack of interactivity and feedback opportunities. An interactive lecture (IL) is the one in which knowledge is imparted to students by involvement in the form of questions and answers[5].

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Paivio's dual-coding theory states that learning is best attained when a lecture is coupled with an animation, because this combination provides a reference from which students can appreciate the knowledge presented in the animation.[6] In Bahria University Medical & Dental College, (BUM &DC) content of each lecture in view of learning objectives is aligned after consultation with subject experts then approved by department of Medical Education. Theme of IL is based on power point presentations admixed with use of white board and interaction with the help of questions and answers. To achieve this, all the lecturers attended a workshop on effective power point presentations prior to preparation of lecture topics. They were then told to prepare relevant lecture material in view of key objectives, clarity and readability of slides with engagement of participants.

There is no doubt that IL form back bone of structured time table in a conventional teaching curriculum. In a hybrid medical education system with incorporation of problem based learning, the educationists have to think twice to continue IL as major part of core curriculum, hence their proportion in association with other teaching tools needs to be demarcated. The objective of our study was to evaluate perception of students and lecturers on the usefulness of IL. Results of this study might help educationists to analyze and improve this teaching methodology for effective learning of medical students and adjust its proportion in curriculum.

METHODOLOGY

This survey was conducted after approval from Ethical Review Board of BUM&DC after completion of six integrated modules of; Cell Biology (Module I), Musculo Skeletal/lymphoid (Module II), Respiration/Cardiovascular (Module III), Gastro intestinal tract/Urinary system (Module IV), Neuro Sciences (Module V) and Reproductive /Endocrine systems (Module VI) from January 2009 till December 2010. The self reported questionnaire was distributed to 100 students. It comprised of questions to evaluate IL as an imperative tool for understanding: content, structure & functional relationship, difficult concepts, pathological and applied aspects of basic science knowledge in health and disease. These responses were collected on a 5- point scale with a score of 1=poor, 2=satisfactory 3=good, 4=very good and 5=excellent. The usefulness was evaluated by responses; good, very good and excellent whereas poor and satisfactory were meant for insignificance of the teaching tool.

The lecturers (18) involved in teaching of this batch were given a different questionnaire for their comments on usefulness of IL. Their response was estimated by a 5-point Likert scale with a score of 1=strongly disagree (SDA), 2-disagree (DA), 3=neutral (N), 4=agree (A), 5=strongly agree (SA) was used to assess the response. Their response of strongly agree with agree (positive response responses), strongly disagree with disagree were summed while neutral responses not considered.

The data was interpreted by soft ware "Statistical Software for Social sciences" (SPSS) version 15.Frequencies of responses from students and lecturers were analyzed and percentages calculated. Poor and excellent responses from students were compared by proportion testing.

RESULTS

The questionnaire was responded by 97 students and 15 lecturers (response rate 97% and 83% respectively). In our study aggregate of 84% students graded usefulness of IL as good, very good and excellent mode in understanding of content of subject (Table 1). The same rating was

Table1: Student's perception on usefulness of Interactive lectures

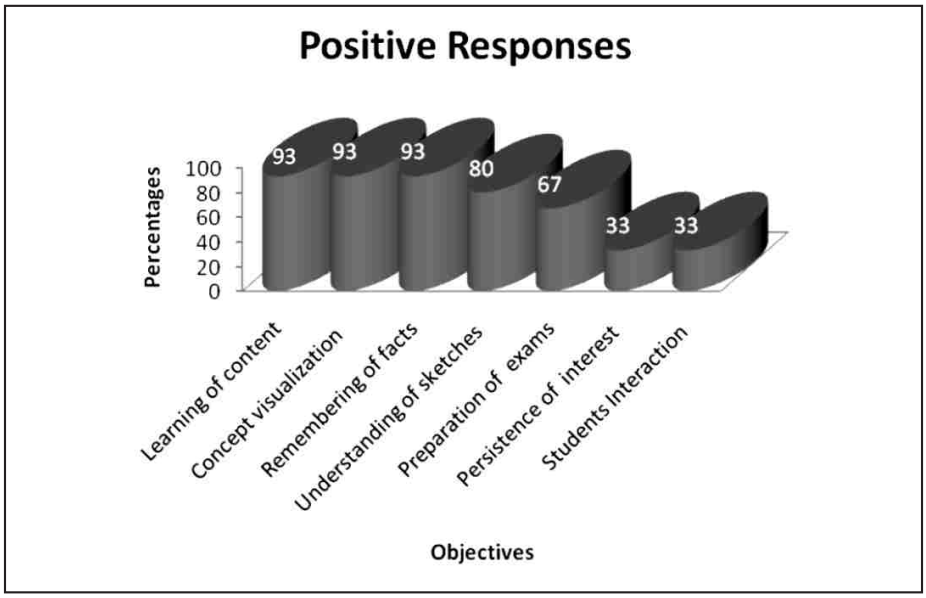
Objective	Poor	Satisfactory	Good	Very good	Excellent
Understanding of content of subject	3.4	23.0	37.9	20.7	14.9
Understanding of structure & functional relationship	5.7	19.5	32.2	31.0	11.5
Understanding of difficult concepts	9.2	27.6	34.5	14.9	13.8
Perception of pathological aspects	9.2	17.2	43.7	14.9	14.9
Integration of knowledge in basic health sciences	8.0	18.4	39.1	17.2	17.2
Application of knowledge in health & disease	13.8	26.4	29.9	17.2	12.6

* Values expressed are in percentages

Table 2: Comparison of poor and excellent responses by students on usefulness of Interactive Lectures

	Poor	Excellent	P-value
Understanding of content of subject	3%	15%	0.005
Understanding of structure & functional relationship	6%	12%	0.144
Understanding of difficult concepts	9%	14%	0.308
Perception of pathological aspects of subject	9%	15%	0.216
Integration of knowledge in basic health sciences	8%	17%	0.050
Application of knowledge in health & disease	14%	13%	0.802

Figure 1: Perception of positive response of lecturers on usefulness of Interactive lectures



given by 89% students in understanding of structure and functional relationship. Eighty four percent students considered it to be useful (good+verygood+excellent) in teaching of pathological aspects with integration of knowledge in basic health sciences. Twenty six percent students expressed satisfactory response on applied aspect of knowledge in lectures while 14% were totally unsatisfied with its usefulness in applied sciences (Table 1).The proportion testing indicated better understanding of subjects and integration of knowledge with clinical application (Table 2).

It was found that 93% of faculty members proposed lectures to be effective in teaching of content, concept visualization and remembering of facts (Figure 1). The inefficacy in terms of interaction with students and maintenance of interest throughout the lecture period was mentioned by 33% lecturers.

DISCUSSION

The curriculum in a medical university needs to be planned and frequently revised in terms of availability and competency of teaching staff, logistics and learning styles of medical students. The course design of entire curriculum and applied teaching methodologies at the same time need to be evaluated and improved in terms of feedback comments retrieved from students as well as faculty members involved in delivery of lectures[7]. The diversity in the mode of delivery of IL is catered by students of different learning styles and capabilities, so it is imperative to evaluate its usefulness by donor as well as recipient.

The learning objectives in an IL are elaborated with relevance to content, clarified by examples, elucidated with pertinent questions followed by precise summarization[8,9]. Average

attention span of an adult is 15-20 minutes which can be augmented only, if lecturer employs changes in instructional strategies.[13]A number of studies support usefulness of lectures when they are made interactive by the use of computer simulations, role play, quizzes, question answers and group activities so as to facilitate learning[11-13]. Studies of IL in various disciplines, including medicine have found to be stimulating, promote student and teacher satisfaction, engagement and motivation[14,15]. The usefulness of IL was supported by our students who were satisfied with delivery of content.

IL is the most widely used teaching methodology employed in medical education and attempts have been made to make it more interactive so as to improve the learning outcome[16]. Introducing interactive techniques can promote learner participation which can lead to a higher level of learning. These approaches require utilization of various forms of questioning which can stimulate interest, provoke attention, serve as an ice-breaker and provide valuable feedback to the teacher and student alike[16]. Results of our study emphasize on, improvement in interaction with students in order to sustain their interest, attention and concentration during the period. The need of interaction is supported by a study in which workshop on interactive lecturing enhanced effectiveness of interactive learning[17].

Perception of students and faculty in terms of feedback has led to innovations in medical education, improvement in teaching capabilities, introduction of problem-based learning techniques and implementation of clinically oriented problem solving tutorials in medical colleges of Pakistan[18,19]. The incorporation of students and faculty responses has led to development of integrated modular system which has demonstrated better performance of students in medical institutions[20]. Likewise, results of this study can be used for improvement in lecture delivery with greater student interaction to make them alert, attentive, motivated and interested in the subject. Lecturers were not satisfied with perception of pathological aspects and clinical correlation conveyed by IL. This objective can be achieved by incorporation of case based lectures to accomplish the deficiency highlighted in our study[11].

Limitation of the study is disproportion in scoring analysis scale for students in which below average responses were estimated by poor and satisfactory whereas above average (usefulness) were represented by good, very good and excellent. This however is the first study conducted so far to analyze usefulness of IL in terms of perception from students and lecturers.

CONCLUSION

Perception of students and lecturers declared usefulness of IL, predominantly for delivery of subject content. This teaching methodology, with little modifications should be continued in the core curriculum of basic sciences irrespective of conventional or hybrid system of education.

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CONTRIBUTORS

RR conceived the idea, planned and supervised the study. KA & AK did the data collection, analyzed the study & wrote the manuscript. All the authors contributed significantly to the research that resulted in the submitted manuscript.